

CLARIFICATION OF INFORMATION

REQUESTED FOR

RECOGNITION OF A REGION

Disease: Brucellosis (*Brucella abortus*)

Region: Australia

**CLARIFICATION OF INFORMATION REQUESTED FOR
RECOGNITION OF A REGION**

Disease: **Brucellosis (*Brucella abortus*)**
Region: **Australia**

1. The authority, organisation and infrastructure of the veterinary services organisation in Australia.

What veterinary force is available in the region for carrying out regulatory programs for livestock disease?

Australia has about 6700 professionally qualified veterinarians. About 78% are engaged in private practice, 8% are employed by government (Commonwealth and State/Territory), and the remainder are employed by other organisations, mainly universities and industry. These veterinarians are assisted by about 4400 animal health technicians.

Australian States and Territories are responsible for disease control and eradication within their own boundaries. The Commonwealth provides advice and coordination, and in some circumstances financial assistance for national eradication programs of significant diseases. Each State/Territory is subdivided into veterinary regions or divisions under the control of a government veterinary officer. Each region or division is further subdivided into either animal health districts or rural lands protection boards which are administered by inspectors who may be veterinarians or qualified animal technicians.

Are all officers Veterinarians?

All officers of animal health services are not veterinarians. For technical staff breakdown refer Table 1, which gives figures reported to OIE, 1997.

— Table 1: Number of veterinarians and other animal health personnel (1997)

Veterinarians		Auxiliary personnel	
government	569	animal health assistants (2yr trained)	2445
laboratories, universities etc	436	Auxiliary staff	292
private practitioners	5193	food hygiene and meat inspectors	1681
other veterinarians	522		
Total	6720	Total	4418

Are any non veterinarians under the direct supervision of veterinary officers?

The officers listed as auxiliary personnel are generally under the supervision of veterinarians. Official veterinary services in Australia comprise officers from the Commonwealth, State and Territory Governments. A system of consultative committees ensures that these elements work together to serve the overall interest of Australia.

What are the required procedures for specimen collection?

Blood, milk or cream samples are collected as required into sterile containers and submitted to approved laboratories for *B. abortus* antibody testing. Presumptive diagnosis is made from positive results to one or more serological tests. A positive diagnosis is achieved by isolation of *B. abortus* from tissues of a suspect cow or foetus. The relevant sections of Australian Standard Diagnostic Techniques (ASDT) attached, outline diagnostic procedures, samples required and sampling techniques for brucellosis.

What diagnostic procedures are routinely followed for each disease agent of concern?

The relevant sections of ASDT outline diagnostic procedures, samples required and sampling techniques for brucellosis.

What laws, regulations and policies are in effect?

Rules are outlined at pages 9-16 of the Standard Definitions and Rules (SD&Rs) are at Attachment I. Each Chief Veterinary Officer (CVO) implements the SD&R's under individual State/Territory legislation.

What security measures are in place at ports of entry to control importation of materials that might carry disease agents of concern?

Australia is free from bovine brucellosis. Quarantine procedures have been in place for some time to ensure that this status is not compromised by importation of infected animals or animal products. Requirements for importation are described in Animal Quarantine Policy Memorandum 1997/23 (AQPM1997/23, at Attachment II).

2. Disease status: is the restricted agent known to exist in the region? If "yes" at what prevalence? If "no" when was the most recent diagnosis?

Despite active surveillance for the disease until 1993, *B. abortus* has not been isolated anywhere in Australia since 1990. The agent is considered not to exist in Australia. Diagnoses in humans have been followed up with human health authorities and none have been due to domestically acquired *B. abortus* infection. Australia more than meets OIE requirements for freedom for bovine brucellosis, which require that testing ascertain that the rate of infection does not exceed 0.2%. (OIE Chapter 3.2.1.1. Attachment III). None of the 145,000 cattle herds in Australia is infected.

A brief history of Australia's eradication of bovine brucellosis and subsequent monitoring is given in the attached article "The Eradication of Bovine Brucellosis from Australian Cattle" (Attachment IV).

Is reporting the pest or disease agent required in the region?

Bovine brucellosis, caused by *B. abortus*, is a notifiable disease in all States.

If the pest or disease agent was present and subsequently eradicated, what methods were used for eradication?

Australia declared freedom from bovine brucellosis in 1989 following an extensive eradication campaign using a combination of vaccination, test and slaughter and traceback methods.

What geographic and environmental characteristics of the exporting region may influence the prevalence of the pest or disease agent?

The prevalence of the disease agent is considered to be zero. Geographic and environmental characteristics are thus not relevant.

3. The status of adjacent regions with respect to the pest or disease agent.

There are no land masses contiguous with or adjacent to the Australian continent. Papua New Guinea is the closest noncontiguous land mass, separated by the Torres Straits, a distance of some 120 kilometres. The risk of incursion via an infected animal is considered negligible. Papua New Guinea declared freedom from bovine brucellosis during the 1970's and continuing abattoir surveillance has confirmed freedom from disease. The next nearest neighbour, Indonesia, is considered infected. Imports of livestock do not occur from either of these regions. New Zealand, some 2500km away, has also eradicated bovine brucellosis.

4. The extent of an active disease control program, if any, if the agent is known to exist in the region.

What is the extent of an active disease control program, if any, if the pest or disease agent is known to exist in the region, or recently existed in the region?

Brucella abortus is not considered to exist in livestock in the region. Active programs exist for investigation of abortion in cattle. Serological testing provides monitoring of export cattle. Queensland, the last state to eradicate, has reported negative results to brucellosis testing in two structured surveillance programs recently. Passive surveillance is considered adequate to detect any disease incursion.

What epidemiologic investigations are done to trace the source of the infection?

There are no known sources of infection in Australia. Abortion investigation and traceback were the main methods used to trace source of infection. Abortion investigation continues in disease surveillance where a major consideration is the exclusion of brucellosis as an exotic disease.

Are infected or exposed animals or premises quarantined?

The two most recent cases in 1989 and 1990 resulted in whole herd depopulation. Until depopulation was complete, movement of livestock for reasons other than slaughter was not permitted. The same approach would be used in the event of disease detection now. The SD&R's (originally drafted during the eradication program) allow for quarantine and testing

but since bovine brucellosis is an exotic disease, this will not occur. The Australian Veterinary Emergency Plan (AUSVETPLAN) publishes a series of manuals describing procedures in the event of exotic disease incursion. An AUSVETPLAN for bovine brucellosis is in preparation; procedures are not expected to differ substantially from those outlined in the attached SD&R's and the Australian Standard Diagnostic Techniques (ASDT) manual. A copy of the section on bovine brucellosis is at Attachment V.

What tests are performed prior to releasing the quarantine?

The SD&R's clearly state movement requirements for properties under restriction for brucellosis. These controls have not been required since 1990.

What procedures are used to clean up the premises?

The two infected properties discovered in 1989 and 1990 were depopulated. Infection in these herds was discovered as a result of abattoir traceback by serology; no clinical signs of brucellosis were seen and there was no infectious material on the premises. However a minimum period of thirty days was enforced after the last destocked animal left during which period restocking was not permitted.

What treatment regimes are followed?

Treatment of cattle for brucellosis is not permitted in Australia.

What breeding practices are followed?

Natural mating, artificial insemination and embryo transfer are accepted breeding practices in Australia. Prior to eradication, normal movement controls applied to stock from infected areas being used for breeding. Artificial Insemination centres were among the first to apply restrictions for bovine brucellosis.

If depopulation practices are used, how are carcasses disposed of (are they salvaged at abattoirs)?

Carcasses may be disposed of by burning, deep burial or abattoir slaughter. Guidelines for disposal are contained in The Australian Veterinary Emergency Plan, Operational Procedures Manual, 1996: Destruction of Animals.

Is indemnity paid on destroyed animals?

During eradication, compensation was paid for compulsorily destocked animals. In the event of destruction of livestock due to an outbreak of exotic disease, The Australian Veterinary Emergency Plan, Operational Procedures Manual, 1996: Valuation and Compensation, is the reference for compensation measures.

Have premises, thought to have been cleaned up, later found to be still affected?

Premises were not routinely "cleaned up". Abortion storms did not occur due to the comprehensive coverage with vaccine. This meant that overt contamination with infectious material did not occur.

In the early stages of eradication, residual infection of properties occasionally occurred. In most cases, this was due to incomplete depopulation or illegal movement of infected stock. Altered regulations meant that these practices ceased as States and Territories neared eradication. Alterations to diagnostic methods also reduced levels of residual infection in later stages of eradication.

5. The vaccination status of the region. When was the last vaccination? What is the extent of vaccination if it is currently used and what vaccine is being used?

The use of vaccine for prevention of bovine brucellosis officially ceased on 30 June 1985, five years prior to declaration of bovine brucellosis freedom. Strain 19 and Strain 45/20 vaccines were used during eradication under the supervision of the Chief Veterinary Officer of the State in which they were used.

There are no bovine brucellosis vaccines used, manufactured or imported into Australia. Vaccine production ceased in 1988. The use of vaccine would not be an initial consideration in the event of an outbreak of brucellosis.

Is the ownership and use of vaccination allowed?

No

When was the last vaccination?

Vaccination officially ceased on June 30, 1985. In that year in the state of Queensland, Strain 19 was used in 2 herds (608 head) and Strain 45/20 killed vaccine was used in 2 herds (1066 head).

What is the extent of vaccination if it is currently used?

Vaccine is no longer used in Australia.

What types of vaccine (live, modified live, killed) are used?

Vaccine is no longer used in Australia.

Who may vaccinate (herd owners, veterinarians, etc)?

No person is licensed to use any vaccine for *B. abortus* in Australia.

Are records kept of the use of vaccine?

Vaccine is no longer used in Australia.

Who produces the vaccine?

Vaccine is not manufactured in Australia.

Is the administration of serum permitted? If so, by whom and under what conditions?

Serum has never been recognised as a treatment or prevention for bovine brucellosis in Australia.

6. The degree to which the region is separated from adjacent regions of higher risk through physical or other barriers.

Australia is an island continent. The nearest infected region is Indonesia, of which the closest part is Irian Jaya, separated by sea from Australia by PNG and the Torres Strait. The status of Irian Jaya is unknown. See item 3.

7. The extent to which movement of animals and animal products is controlled from regions of higher risk, and the level of biosecurity regarding such movements.

From what countries or regions does the requesting region import products that could potentially carry pest or disease agents of concern?

The United States and some Member States of the European Union.

To what extent is the movement of such products controlled from regions of higher risk, and what is the level of biosecurity regarding such movements?

Commonwealth control over imported livestock is achieved under the *Quarantine Act 1908*. Strict pre-entry requirements for importation of live animals are specified. Specific import requirements for bovine brucellosis are attached in Animal Quarantine Policy Memorandum 1997/23, (Attachment II) which includes certification and testing requirements.

8. Livestock demographics and marketing practices in the region.

How many herds, flocks, etc. of each relevant species are in the region?

Recent information from the Australian Bureau of Agriculture and Resource Economics (ABARE) indicates that Australia has about 21 000 specialist beef enterprises, another 10 000 mixed operations producing beef and about 13 600 dairy enterprises. This information includes only enterprises with estimated value of agricultural operations over AUD22 500. There are approximately 145 000 herds of cattle in Australia. Herds are defined for disease traceback purposes so there may be more than one herd on a property, and smaller herds, though not considered an agricultural enterprise, are identified and can still be traced through abattoir monitoring.

How are they distributed (e.g. herd density etc.)

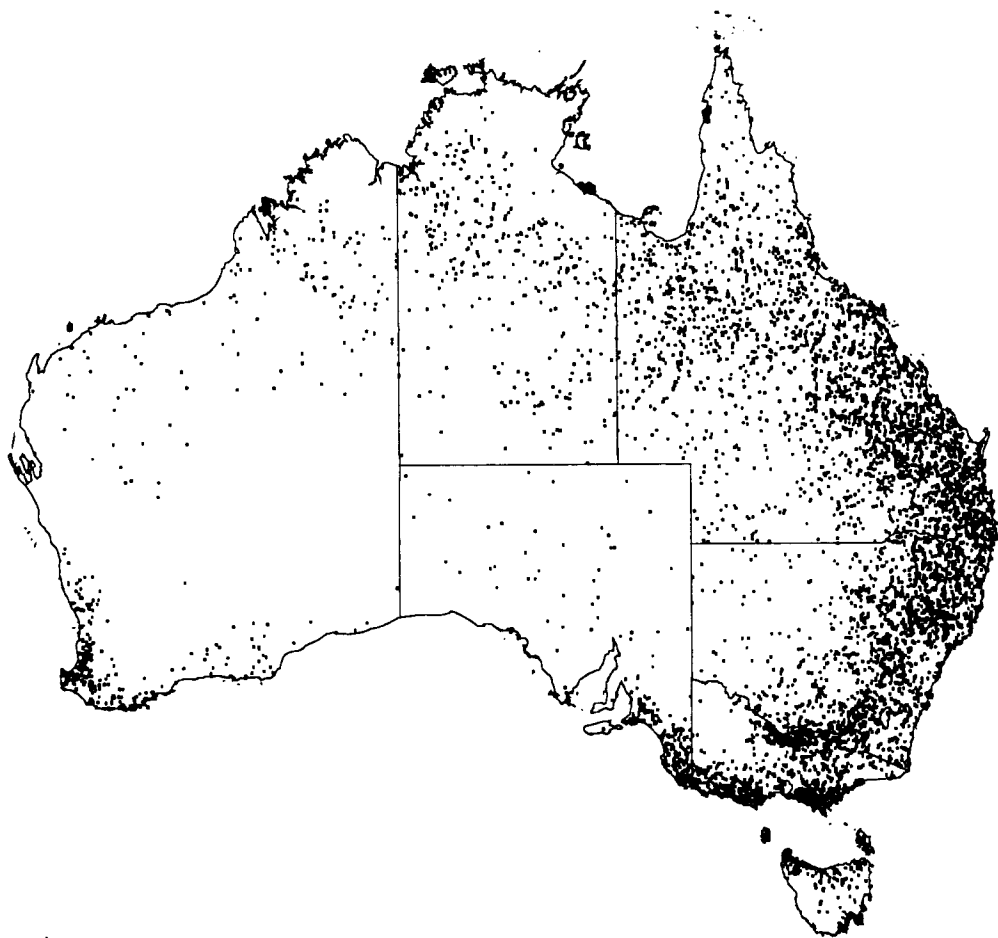
Beef cattle numbers ('000) by State/Territory, 1994–1997

Year	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Aus
1994	6127	2604	9656	1056	1683	507	1434	13	23080
1995	5867	2659	9689	1064	1773	507	1419	13	22991
1996	6019	2714	9928	1069	1803	521	1502	13	23569
1997	6038	2519	10071	1049	1859	536	1204	11	23287

Dairy cattle numbers ('000) by State/Territory, 1994–1997

Year	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Aus
1994	364	1585	286	147	123	172	1	0	2678
1995	370	1621	285	152	126	185	1	0	2740
1996	371	1682	286	150	121	197	1	0	2808
1997	397	1849	302	164	128	226	1	0	3057

Distribution of cattle in Australia (1 dot = 4,000 cattle) based on 1994 Agricultural Census



Where are the major livestock marketing centres?

Marketing centres are situated in major rural towns and in adjacent to capital cities. These are usually auction centres (described below).

What are the patterns of livestock movement within the region?

Livestock movements usually occur as a result of sale. The following methods of sale and stock transfer are in operation in Australia:

Auction	Used at district saleyards and occasionally on farm, on a dollar/head or cents/kilogram liveweight, for stud, store and slaughter cattle
Over scales	cents/kg liveweight. Used for slaughter cattle
Over hooks	cents/kg dressed weight. For slaughter cattle
Paddock sales	Price negotiated after on property inspection. For stud, store, slaughter, and export feeder and slaughter cattle.
Other methods	includes computer or video aided methods. For slaughter and store cattle.

How are the animals transported and handled during market transactions?

Cattle are normally transported by truck or train before and/or after market transactions, though some methods of sale reduce transport requirements to a minimum. Cattle presented to slaughter markets or abattoirs are required in all states to be identified to the herd of origin by a certified tailtag. A register of tailtags is kept by the responsible authority in each state.

9. The type and extent of disease surveillance in the region -- eg is it passive and/or active; what is the quantity and quality of sampling and testing?

Are serum surveys conducted, and if so, how frequently, what sample sizes are used, and what has been found?

Random serum surveys for bovine brucellosis are not routinely conducted. However, livestock are regularly tested for export and in disease investigations. Serological testing provides monitoring of export cattle. Queensland, the last state to eradicate, has reported negative results to brucellosis testing in two structured surveillance programs recently. Each State, to maintain FREE AREA status, is required to operate an approved monitoring system. (SD&R's, Attachment I). These data are compiled by the National Health Information System (NAHIS), and published in Animal Health Surveillance Quarterly. The most recent copy is at Attachment VI and publications are available at the NAHIS website (<http://www.brs.gov.au/aphb/aha/nahis.htm>). For the calendar year 1997, 629 abortion investigations were reported, and 13427 sera tested for bovine brucellosis. It is accepted that these sera may not be randomly selected. However, perceived bias is towards breeding cattle and also to those areas in which bovine brucellosis was previously at high levels. Bovine brucellosis was excluded in all abortion investigations, and follow up to serology did not reveal any evidence of *B. abortus* infection.

Is reporting of sick animals mandatory, and if so, what is the procedure (by whom and to whom) and what penalties are involved for failure to report?

Reporting of sick animals is the responsibility of the owner. A veterinarian attending an animal and suspecting an exotic or notifiable disease is required by law to report the incident to the local or State authority, usually a Rural Lands Protection Board or State Department of Agriculture. Penalties for non reporting of such incidents are at the discretion of the Veterinary Surgeons Board of each State; veterinarians may be deregistered for such offences.

Are laboratory tests run on suspicious animals? If so, what procedures and to what extent (eg what proportion of suspicious cases are evaluated using each of the specific laboratory procedures?)

Extensive follow up is done on positive serology and in abortion investigation. Confirmed CFT positives are autopsied according to the SD&R's; samples are taken, consigned to an approved laboratory and tested according to methods described in ASDT.

Are quarantines imposed on premises with suspicious cases, pending final diagnosis?

In SD&R's p5, procedures to be followed in the case of suspicion of disease are outlined. Briefly, the herd is classified as SUSPECT (SU) and movement requirements and herd testing requirements are applied.

What other procedures are followed regarding suspicious cases?

Other procedures are at the discretion of the CVO of the State/Territory in which the disease under suspicion occurs. Normally, traceback, traceforward and whole herd serological testing would follow.

10. Diagnostic laboratory capabilities?

What diagnostic laboratory capabilities are there?

State Veterinary Laboratories offer diagnostic serology at a number of sites. The table below gives the number of sites and tests available in each state.

Test	VIC	QLD	NSW	TAS	SA	WA	NT
CFT	4	3	2	1	1	1	1
ELISA	2	1	1	1	1	1	1
MRT	-	-	-	1	-	1	1
RBPT	1	3	2	1	1	1	1
SAT	1	2	1	1	1	1	-

The Australian National Quality Assurance Program (ANQAP) conducts annual QA testing for veterinary diagnostic procedures in Australia and New Zealand. A copy of the 1997 summary and brucella serology results is at Attachment VII.

Are there laboratories approved for agent isolation, identification and typing?

Central veterinary testing laboratories in each state have the capability of *B. abortus* isolation and identification. These laboratories no longer hold reference cultures or reagents. With the eradication of Brucellosis, State and Territory Chief Veterinary Officers at the request of the Brucellosis and Tuberculosis Eradication Campaign Committee, required all Brucella reference material to be destroyed or forwarded to the Australian Animal Health Laboratory in Geelong, Victoria.

If not, where specifically is such isolation, identification and typing performed?

The Australian Animal Health Laboratory (AAHL) is the Australian Brucella Reference Laboratory. AAHL holds reference collections and is responsible for identification and typing.

What security measures are in place in the region to prevent the escape of biological agents?

AAHL is a high security laboratory of international standard. A brief description of biocontainment facilities is at Attachment VIII. Facilities are available for safe, secure handling of many exotic disease agents including *B. abortus*. Laboratory security was not a cause of breakdown to infection during the eradication program.

What kind of training have the diagnostic personnel had regarding the specific disease agents of concern?

State laboratories in Australia require minimum qualifications of tertiary diploma or bachelors degree for scientific supervisory personnel. All diagnostic work requires such supervision.

11. Policies and infrastructure for animal disease control in the region --i.e, emergency response capacity.

What policies and infrastructure exist for emergency response to outbreak situations?

Procedures used in the successful eradication of bovine brucellosis are still in place, thus a disease incursion would be handled the same way that reports of infection were treated in the final stages of eradication. Many staff involved in brucellosis eradication are still employed in active tuberculosis surveillance.

The Ausvetplan manual for eradication of bovine brucellosis is at draft stage. After publication, this manual will become the reference for procedures to be used in eradication of any incursion of bovine brucellosis.

Attachments:

- I. BTEC Standard Definitions and Rules, 1995
- II. Animal Quarantine Policy Memorandum 1997/23
- III. OIE Code Bovine Brucellosis chap. 3.2.1.
- IV. "The Eradication of Bovine Brucellosis from Australian Cattle"
- V. Australian Standard Diagnostic Techniques: Bovine Brucellosis
- VI. Animal Health Surveillance Quarterly, 1 Jan- 31 Mar, 1998
- VII. Australian National Quality Assurance Program